



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Dividing gives  $\frac{EH}{AH} = \frac{\tan \frac{1}{2}(A-B)}{\tan \frac{1}{2}(A+B)}$ .

Equating, we have  $\frac{a-b}{a+b} = \frac{\tan \frac{1}{2}(A-B)}{\tan \frac{1}{2}(A+B)} \dots \dots (1).$

From triangle  $BAE$ ,  $\frac{BE}{AB} = \frac{\sin BAE}{\sin AEC}$ , or  $\frac{a-b}{c} = \frac{\sin \frac{1}{2}(A-B)}{\sin \frac{1}{2}(A+B)} \dots (2)$

Also  $AH = AD + DE + EH = AC \cos \frac{1}{2}(A+B) + CE \cos \frac{1}{2}(A+B) + EB \cos \frac{1}{2}(A+B)$ ,  
 $= (a+b) \cos \frac{1}{2}(A+B).$

In triangle  $BAH$ ,  $AH = c \cos \frac{1}{2}(A-B).$  Equating these values of  $AH$  gives

$\frac{a+b}{c} = \frac{\cos \frac{1}{2}(A-B)}{\cos \frac{1}{2}(A+B)} \dots (3)$  The quotient of (2) divided by (3) gives (1) also.

## CERTAIN SERIES OF INTEGRAL, RATIONAL, SCALENE TRIANGLES.

By SYLVESTER ROBINS, Long Branch Depot, New Jersey.

Investigation leads to the belief that there is an endless number of infinite series of integral, rational, scalene triangles, wherein the base of every term in  $n$ th series is  $n+2$ , and the difference between the other two sides is constant.

### EXAMPLES:

- I. 3, 4, 5: 3, 25, 26: 3, 148, 149: 3, 865, 866: 3, 5044, 5045: &c.
- II. 4, 3, 5: 4, 13, 15: 4, 51, 53: 4, 191, 193: 4, 723, 725: &c.
- III. 5, 3, 4: 5, 29, 30: 5, 291, 292: 5, 2885, 2886: 5, 28563, 28564: &c.  
 Also; 5, 5, 6: 5, 51, 52: 5, 509, 510: 5, 5043, 5044: 5, 49925, 49926: &c.  
 And; 5, 12, 13: 5, 122, 123: 5, 1212, 1213: 5, 12002, 12003: 5, 118112, 118113: &c.
- IV. 6, 25, 29: 6, 481, 485: 6, 8665, 8669: 6, 155521, 155525: &c.
- V. 7, 15, 20: 7, 169, 174: 7, 1695, 1700: 7, 16801, 16806: &c.
- VI. 8, 15, 17: 8, 123, 125: 8, 975, 977: 8, 7683, 7685: 8, 60495, 60497: &c.
- VII. 9, 10, 17: 9, 73, 80: 9, 442, 449: 9, 2593, 2600: 9, 15130, 15137: &c.
- VIII. 10, 17, 21: 10, 35, 39: 10, 273, 277: 10, 4049, 4053: &c.
- IX. 11, 25, 30: 11, 267, 272: 11, 2665, 2670: 11, 26403, 26408: &c.
- X. 12, 17, 25: 12, 365, 373: 12, 6617, 6625: 12, 118805, 118813: &c.
- XI. 13, 20, 21: 13, 518, 519: 13, 13460, 13461: 13, 349454, 349455: &c.
- XII. 14, 61, 65: 14, 1125, 1129: 14, 20221, 20225: 14, 362885, 362889: &c.
- XIII. 15, 7, 20: 15, 28, 41: 15, 106, 119: 15, 1015, 1028: &c.
- XIV. 16, 25, 39: 16, 241, 255: 16, 1945, 1959: 16, 15361, 15375: &c.
- XV. 17, 25, 26: 17, 144, 145: 17, 841, 842: 17, 4904, 4905: 17, 28585, 28586: &c.
- XVI.
- XVII. 19, 20, 37: 19, 153, 170: 19, 932, 949: 19, 5473, 5490: 19, 31940, 31957: &c.
- XVIII. 20, 53, 55: 20, 1067, 1069: 20, 21305, 21307: 20, 425051, 425053: &c.
- XIX. 21, 13, 20: 21, 82, 89: 21, 493, 500: 21, 2890, 2897: 21, 16861, 16868: &c.
- XX.
- XXI. 23, 123, 130: 23, 2768, 2775: 23, 60843, 60850: 23, 1336848, 1336855: &c

XXII. 24, 35, 53: 24, 87, 105: 24, 679, 697: &c. And; 24, 7, 25: 24, 203, 221: 24, 3367, 3385: &c.

The present is a very good opportunity to add a few of the many series wherein 25 can be employed as *base of every triangle in every series*.

XXIII. *a*—25, 39, 40: 25, 1923, 1924: 25,96135,96136: 25,4804851,4804852: &c.

*b*—25, 51, 52: 25, 2535, 2536: 25, 126723, 126724: 25, 6333639, 6333640: &c.

*c*—25, 74, 77: &c. *d*—25, 371, 374: &c.

*e*—25, 34, 39: 25, 348, 353: 25,3466,3471: 25,34332,34337: 25,339874,339879:&c.

*f*—25, 12, 17: 25, 106,111: 25,1068,1073: 25,10594,10599: 25,104892,104897: &c.

*g*—25, 29, 36: 25, 153, 160: 25, 777.8, 784.8: 25,3902.76,3909.76: 25,19527.752, 19534.752: 25, 97652.7504, 97659.7504: &c.

*h*—25, 17, 26: 25, 1360, 1369: 25, 95489, 95498: &c.

*i*—25, 136, 145: 25, 9809, 9818: 25, 686800, 686809: &c.

*j*—25, 17, 28: 25, 63, 74: 25, 2030, 2041: 25, 18497, 18508: &c.

*k*—25, 14, 25: 25, 52, 63: 25, 182, 193: 25, 1697, 1708: 25, 15470, 15481: &c.

*l*—25, 741, 754: 25, 1532261, 1532274: &c.

*m*—25, 101, 114: 25, 3265 $\frac{1}{2}$ , 3278 $\frac{1}{2}$ : 25, 7185 $\frac{1}{2}$ , 7198 $\frac{1}{2}$ : &c.

*n*—25, 25, 40: 25, 149, 164: 25, 773.8, 788.8: 25, 3898.76, 3913.76: 25, 19523.752, 19538.752: 25, 97648.7505, 97663.7504: &c.

*o*—25, 39, 56: 25, 340, 357: 25, 38311, 38328: &c.

*p*—25, 7, 24: 25, 84, 101: 25, 10119, 10136: &c.

*q*—25, 11, 30: 25, 2379, 2398: 25, 310475, 310494: 25, 40360587, 40360606: &c.

*r*—25, 33, 52: 25, 5393, 5412: 25, 702273, 702292: 25, 91291313, 91291332: &c.

*s*—25, 113, 132: 25, 15873, 15892: 25, 2064593, 2064612: 25, 268382433, 268382452: &c.

*t*—25, 267, 286: 25, 35915, 35934: 25, 4669899, 4669918: 25, 607052171, 607052190: &c.

*u*—25, 1129, 1150: 25, 18607, 18628: &c.

*v*—25, 17 $\frac{1}{2}$ , 38 $\frac{1}{2}$ : 25, 59 $\frac{1}{2}$ , 80 $\frac{1}{2}$ : 25, 92, 113: 25, 1658, 1679: &c.

*w*—25, 25, 48: 25, 339, 362: 25, 3457, 3480: 25, 34323, 34346: 25, 339865, 339888: &c.

*x*—25, 3, 26: 25, 97, 120: 25, 1059,1082: 25,10585,10608: 25,104883,104906: &c.

*y*—25, 16, 39: 25, 246,269: 25,2536,2559: 25,25206,25229: 25,249616,249639: &c.

*z*—25, 6, 29: 25, 136, 159: 25, 1446, 1469: 25, 14416, 14439: 25,142806,142829: &c.

&—25, 51, 74: 25, 601, 624: 25, 6051, 6074: 25, 60001, 60024: 25, 594051, 594074: &c.

